

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of adaptive power control in a computer network having a plurality of nodes coupled to a common transmission media, comprising:

when no communications are present on the transmission media, sending a training packet from a transmission node of the network to a receiving node in the network at a predetermined power level known by the receiving node;

receiving the training packet at a received power level;

determining a preferred power level for reliable communications between the transmission node and the receiving node based on a comparison of the received power level to the predetermined power level;

sending a configuration packet from said receiving node to said transmission node including the preferred power level for communication; and

sending a primary data communication from the transmission node to the receiving node at the preferred power level.

2. (Previously presented) The method of claim 1 further comprising performing collision detection at the transmission node and waiting until there are no communications on the transmission media of the network before sending the training packet.

3. (Currently amended) The method of claim 1 further comprising determining ~~the~~ an average noise level on the transmission media of the network.

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

4. (Currently amended) The method of claim 1 wherein determining the preferred power level for reliable communications between the transmission node and the receiving node comprises:

determining ~~the~~an average noise level on the transmission media of the network;

determining ~~the~~a signal level necessary at the receiving node given the average noise level and required signal-to-noise ratio for reliable communication to the receiving node;

determining ~~the~~an amount of attenuation suffered by the training packet between the transmission node and the receiving node; and

determining ~~the~~a proper transmit level by summing the signal level necessary at the receiving node and the amount of attenuation.

5. (Previously presented) The method of claim 4 wherein determining the signal level necessary at the receiving node given the average noise level and required signal-to-noise ratio for reliable communication to the receiving node comprises:

adding the average noise level to the signal-to-noise ratio to determine the signal level necessary at the receiving node.

6. (Previously presented) The method of claim 4 further comprising adding a margin for error to the proper transmit level.

7. (Currently amended) The method of claim 4 wherein determining the amount of attenuation suffered by the training packet between the transmission node and the receiving node comprises:

determining ~~the~~an average power level of the training packet as received at the receiving node; and

comparing ~~the~~a power level of the training packet at the receiving node to the predetermined power level at which the training packet was sent to determine the amount of attenuation.

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

8. (Previously presented) The method of claim 1 wherein the training packet is sent at full power as predetermined by the network protocol.

9. (Currently amended) The method of claim 1 wherein the preferred power level for communications between the transmission node and the receiving node is the a minimum power level for reliable communications.

10. (Currently amended) A system for performing adaptive power control of communications between a transmission node and a receiving node in a network, comprising:

a line interface coupled to the transmission media of the network;

a receiver operating in a the receiving node of the network, comprising:

receiver signal monitoring logic coupled to said line interface to monitor the status of the transmission media of the network;

receiver signal processing logic coupled to said line interface to receive and extract data from transmissions on the transmission media;

receiver control logic coupled to said receiver signal monitoring logic and said receiver signal processing logic, wherein, based on a predetermined power level known by the receiving node at which a training packet is transmitted to the receiving node, the receiver control logic determines the preferred power level for transmissions received from a the transmission node in the network and transmits the a preferred power level to the transmission node.

11. (Currently amended) A system for performing adaptive power control of communications between a transmission node and a receiving node in a network, comprising:

a line interface coupled to the transmission media of the network;

a receiver operating in the receiving node of the network, comprising:

receiver signal monitoring logic coupled to said line interface to monitor the status of the transmission media of the network;

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

receiver signal processing logic coupled to said line interface to receive and extract data from transmissions on the transmission media;
receiver control logic coupled to said receiver signal monitoring logic and said receiver signal processing logic, wherein, based on a predetermined power level at which a training packet is transmitted to the receiving node, the receiver control logic determines a preferred power level for transmissions received from the transmission node in the network and transmits the preferred power level to the transmission mode; and

~~The system of claim 10~~

wherein said receiver signal monitoring logic determines an average noise level on the transmission media when the line is quiet and communicates this level to the control logic.

12. (Currently amended) The system of claim ~~10~~¹¹ wherein said receiver signal monitoring logic determines if a training packet sent by the transmission node is intended for the receiving node.

13. (Currently amended) The system of claim 12 wherein said receiver signal monitoring logic determines ~~the~~an average power level of the training packet as received and communicates this level to the receiver control logic.

14. (Currently amended) The system of claim 10 wherein said receiver control logic determines ~~the~~an attenuation between the receiving node and the transmission node.

15. (Currently amended) The system of claim 13 wherein said receiver control logic determines ~~the~~an attenuation between the receiving node and the transmission node by comparing ~~the~~a power level of the average power level of the training packet as received to the predetermined power level at which the training packet was originally sent.

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

16. (Currently amended) A system for performing adaptive power control of communications between a transmission node and a receiving node in a network, comprising:

a line interface coupled to the transmission media of the network;

a receiver operating in the receiving node of the network, comprising:

receiver signal monitoring logic coupled to said line interface to monitor the status of the transmission media of the network;

receiver signal processing logic coupled to said line interface to receive and extract data from transmissions on the transmission media;

receiver control logic coupled to said receiver signal monitoring logic and said receiver signal processing logic, wherein, based on a predetermined power level at which a training packet is transmitted to the receiving node, the receiver control logic determines the preferred power level for transmissions received from the transmission node in the network and transmits a preferred power level to the transmission node; and

~~The system of claim 10~~

wherein said receiver control logic determines the preferred power level from ~~the~~ noise level on the transmission media, ~~the~~ attenuation between the receiving node and the transmission node, and ~~the~~ required signal to noise ratio for reliable communication with the receiving node.

17. (Currently amended) The system of claim 10 wherein said receiver control logic sends the preferred power level to ~~the~~ a transmitter of the receiving node for transmission in a configuration packet to the transmission node.

18. (Original) The system of claim 10 wherein said receiver control logic controls said receiver signal processing logic to extract the data from a data transmission to the receiving node.

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

19. (Original) The system of claim 10 wherein the receiving node confirms success of communication between the transmission node and the receiving node by sending an acknowledgment to the transmission node.

20. (Currently amended) A system for performing adaptive power control of communications between nodes in a network, comprising:

a line interface coupled to a transmission media of the network;

a transmitter operating in a transmission node of the network, comprising:

transmitter signal processing logic coupled to said line interface to send transmissions to the transmission media;

transmitter control logic coupled to said signal processing logic, where the transmitter control logic directs the transmitter signal processing logic to send a training packet to the receiving node at a predetermined power level known by the receiving node to enable the receiving node to specify a preferred transmission power level based on the predetermined power level of the training packet, waits for a configuration packet containing the preferred power level from the receiving node, and then directs the transmitter signal processing logic to send a primary data transmission to the receiving node at the preferred power level.

21. (Original) The system of claim 20 wherein said transmitter control logic determines the preferred power level for the primary data transmission from the configuration packet received back from the receiving node in response to the training packet.

22. (Currently amended) A system for performing adaptive power control of communications between nodes in a network, comprising:

a line interface coupled to a transmission media of the network;

a transmitter operating in a transmission node of the network, comprising:

transmitter signal processing logic coupled to said line interface to send transmissions to the transmission media;

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

transmitter control logic coupled to said signal processing logic, where the transmitter control logic directs the transmitter signal processing logic to send a training packet to the receiving node at a predetermined power level to enable the receiving node to specify a preferred transmission power level based on the predetermined power level of the training packet, waits for a configuration packet containing the preferred power level from the receiving node, and then directs the transmitter signal processing logic to send a primary data transmission to the receiving node at the preferred power level; and

~~The system of claim 20~~

wherein said training packet is only sent once the transmission media is quiet.

23. (Currently amended) The system of claim 20 wherein said transmitter control logic uses the preferred power level ~~information~~—to adjust certain parameters and settings in the transmitter signal processing logic so that the primary data transmission is sent at the preferred power level.

24. (Currently amended) A method, comprising:

at a receiving node, receiving a training packet at a received power level that was sent at a predetermined power level known by the receiving node;

at said receiving node, determining a minimum power level for communications between a transmission node and said receiving node based on a comparison of the received power level to the predetermined power level; and

sending a configuration packet from said receiving node to said transmission node including the determined minimum power level for communication.

25. (Previously presented) The method of claim 24 further comprising determining an amount of attenuation associated with the training packet.

Appl. No. 09/675,533
Amdt. dated March 31, 2005
Reply to Office action of January 5, 2005

26. (Previously presented) An electronic device, comprising:
a line interface adapted to receive packets from a network; and
control logic coupled to the line interface wherein, based on a
predetermined power level at which a training packet is transmitted to the
electronic device, the control logic determines a power level for transmissions to
the electronic device.

27. (Previously presented) The electronic device of claim 26 wherein the
control logic determines an amount of attenuation experienced by the training
packet en route to the electronic device.